

5 What is claimed is:

1. A receiver for processing time division multiple access (TDMA) signals comprising:  
a sampler for sampling a TDMA signal received from a transmission channel;  
a derotator for correcting for frequency offset in the sampled TDMA signal;  
10 a matched filter for correcting for the response of the transmission channel in the  
received TDMA signal;  
an equalizer to which is applied an output signal from the matched filter;  
a deinterleaver to deinterleave the received TDMA signal; and  
a channel decoder for decoding the received TDMA signal after it is deinterleaved.

15 2. The receiver of claim 1 further comprising a filter for filtering the received TDMA  
signal before it is sampled by the sampler.

3. The receiver of claim 2 wherein the filter is an interpolation filter for upsampling the  
received TDMA signal.

4. The receiver of claim 2 wherein the filter is a matched filter for pulse shaping the  
received TDMA signal.

25 5. The receiver of claim 2 wherein the filter is a Nyquist filter.

6. The receiver of claim 2 wherein the filter upsamples the received TDMA signal and  
performs the functions of a Nyquist filter.

30 7. The receiver of claim 1 further comprising a scaler for adjusting the magnitude of the  
received TDMA signal.

8. The receiver of claim 7 further comprising an automatic gain control circuit for  
controlling the scaler.

9. The receiver of claim 8 further comprising an estimator for determining received signal strength and providing an estimate of received signal strength to the automatic gain control circuit.

10. The receiver of claim 1 further comprising a channel impulse response estimator for estimating the response of the transmission channel and updating the coefficients of the matched filter.

11. The receiver of claim 10 further comprising a delay-epoch estimator for controlling the sampler in response to an input from the channel impulse response estimator.

12. The receiver of claim 1 further comprising a frequency offset estimator for estimating frequency offset and adjusting the derotator to response to such estimate.

13. The receiver of claim 1 further comprising a received signal quality metric indicator for measuring signal quality of the received TDMA signal.

14. The receiver of claim 13 wherein the measurement of signal quality is used to condition an output signal from the channel decoder.

15. The receiver of claim 1 further comprising a block decoder for decoding an output signal from the channel decoder.

16. A receiver for processing time division multiple access (TDMA) signals comprising:  
an interpolation filter to which the TDMA signals are applied;  
a pulse shaping matched filter to which is applied an output signal from the interpolation filter;  
a sample selector to which is applied an output signal from the pulse shaping matched filter;  
a derotator to which is applied an output signal from the sample selector;  
a scaler to which is applied an output signal from the derotator;

- 5 a matched filter to which is supplied an output signal from the scaler;  
an equalizer to which is applied an output signal from the matched filter;  
a deinterleaver to which is applied an output signal from the equalizer;  
a channel decoder to which is applied an output signal from the deinterleaver; and  
a block decoder to which is applied an output signal from the channel decoder.

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